1. 1st Mechanical calculating device :- Abacus [+, −, √]
2. 1642 1st Mechanical adding Machine :- Pascaline (adding machine)
3. 1833 1st General Purpose computer :- Analytic Engine (Charle Babbage) (1837)
4. 1890 1st Electro Mechanical Machine :- Tabulating Machine (Herman Hollerith) (1890)
5. 1946 1st Electronic Digital computer :- ENIAC [JP Eckart, JW Mauchly] (1946)
6. 1st computer with storage capacity :- EDSAC (Maurice Wilkes)
7. Father of computer :- Charles Babbage
8. Father of Modern computer :- Alan Turing
9. 1st Mini computer :- PDP-8
10. 1st computer of INDIA :- Siddharth
11. 1st super computer of India :- PARAM [PARAM 8000]
12. Recent fastest S.C of INDIA :- PARAM-Eighth
13. Ted Hoff :- 1st invent microprocessor.
14. 1st computer Mouse ~~invented~~ built by :- Douglas Engelbart [1964]
15. 1st 3D Printer invented by :- Chuck Hull
16. 1st computer programme was developed by :- Lady Ada Augusta
17. 2nd December :- Computer Literacy Day.
18. 1st computer made in INDIA :- Siddharth (Electronic Corporation of INDIA)
19. 1st super computer of the World :- CDC 6600 (1964) [Seymour Cray] (Father of super computer)
20. 1st computer virus :- Creeper
21. 1st comp. Antivirus :- Reaper
22. 1st Indian computer :- TIFRAC [TATA Institute of Fundamental Research Automatic calculator]
23. First Automatic Electronic Computer :- ABC [Atanasoff - Berry computer]

1st Nobel Prize Winning Purchase

:- GENERATION OF COMPUTER :-

Generation	Period	Main components	Examples
I	1940-52 (12yr)	• Electronic valve • Vacuume Tube • Magnetic Drum (milisecond)	ENIAC-I, UNIVAC, EDVAC, EDSAC • Batch OS
II	1952-64 (12yr)	• Transistor • Magnetic core Tech. (micro-second)	IBM-7000, 1401, 1620 CDC-1604, 3600 ATLAS, ICL-1901
III	1964-71 (7yr)	• Integrated circuit (IS Kilby) • Magnetic core (nano-second)	IBM-360, 370, NCR-395, CDC-1700, ICI-2903 •
IV	1971-	• Large Integrated circuit • Semiconductor Memory (Pico second)	APPLE, DCM
V		• Optical Fibre. • Artificial Intelligence • Optical Disc	

:- TYPES OF COMPUTER :-

1. Micro computer / Personal computer
   - → Also known as PC or Personal computer.
   - → Largely used for domestic & official Purpose.
   - → eg/ Laptop, Notebook computers, Micral [1st Micro comp] [compact computer]
2. Mini computer [capable of serving up to 250 users]
   - → comparatively larger than Micro-computer.
   - → 5 to 50 times more Powerful than Micro computer.

Ex:— PDP-1 [1st Mini comp]

3. Mainframe computer :—

→ More than 100 people can work at a time on different terminals by time sharing & Multi-tasking techniques.

Ex:— ~~Harvard~~ Mark I [1st Mainframe comp]

4. SUPER COMPUTER :—

→ Very powerful, most expensive, fastest computers.

→ Able to process most complex jobs with a very high speed.

— The 1st supercomputer was developed by 1976 by ~~Roger~~ Cray.

5. Quantum computer :—

→ Development of this type of computer is in final stage.

→ In quantum computers, Q-Bitt will be used instead of Binary bits.

☐ Acc^y to working style, there are 3 types of computer;

a) Digital — Can't changable

b) Analog — Data changable

c) Hybrid — Mixture of Analog & Digital

NOTE

1. 1st super computer of the world :— CRAY K-1

2. 1st Digital computer of the world :— ENIAC

3. Most super computers use LINUX (O.S).

4. 1st Practical digital computer :— UNIVAC

5. 1st Programming language :— FORTRAN ⇒ (Formula Translator) [Founder :- John Backus]

6. Language of 5th generation computer :— PROLOG

7. 1st object oriented Programming Language :— SIMULA (simulation Language)

8. Facebook Language → Frontend Language :— PHP
→ Chatting " :— Erlang, Python
→ Backend "

ORGANIZATION OF COMPUTER :-

→ A computer is organized into three basic units:

1. CPU [Brain of computer]
2. The Memory Unit
3. The Input / output unit

→ Also a computer has mainly two main parts:

1. Hardware (Touchable)
2. Software (Untouchable)

1. CPU :-

[1st processor :- Intel 4004

→ Called the Brain of the computer.

→ Makes all the required calculation & processes.

→ The clock rate or speed of a CPU's is measured in :- [HERTZ] [Modern processor speed in GHz]

→ It is divided into 3 main components;

a) ALU [Arithmatic & Logic unit]

b) Control Unit [Cheque which rule applicable]

c) Registers [Stores]

a) ALU :-

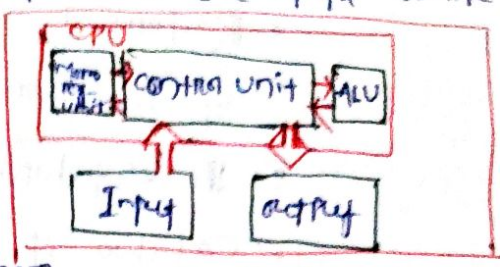
- Performs all the Mathematical & Logical operations in the information supplied to the CPU.

b) Control Unit :- [Nerve centre]

- Fetches the Instruction (Programs) from the memory & according to the instructions, controls the flow of data between the ALU & others part of computer.

c) Registers :-

- storage locations that hold instructions or data while CPU is using them.



NOTE :-

BITS :- Binary Digits

		BIT System		Decimal System
1 BITS	→	0 or 1		
1 Nibble	→	4 Bits		
1 Byte	→	8 Bits		
1 KB	→	1024 BITS	→	1000 BITS
1 MB	→	1024 KB	→	1000 KB
1 GB	→	1024 MB	→	1000 MB
1 TB	→	1024 GB	→	1000 GB
1 PetaBite	→	1024 TB	→	1000 TB
1 ExaBite	→	1024 PB	→	1000 PB
1 Zeta Byte	→	1024 EB	→	1000 EB
1 Yota Byte	→	1024 ZB	→	1000 ZB
1 Bronto Byte	→	1024 YB	→	1000 YB
1 Geop Byte	→	1024 BB	→	1000 BB

2. The Memory unit :-

→ Stores all the informations & data for the CPU before or after the CPU process the data.

→ It can receive data, hold it & deliver acc^r to the instructs from the control unit.

→ Memory is of two types;

a) Primary Memory b) Secondary Memory

a) Primary Memory [Main Memory] :—

- Referred to as the working memory or the main memory of the computers.
- It establishes direct communication with the computer.
- Capable of receiving or sending data at a very high speed.
- Temporary in nature.
- Data stored in 1° Memory is lost when the computer is switched off.
- It is also called volatile memory.
- Eg// :- RAM [Random Access Memory]

RAM :— [Founder :— Robert Heath] (Both RAM & ROM)

- Computer can change the contents of RAM at any time. [Read + Write]
- RAM is volatile.
- Two main types of RAM are ; ▣ Static RAM (faster) — Made up of transistors — Create Cache Memory
  ▣ Dynamic RAM (slower) — Made up of capacitors
- RAM speed :— MegaHertz (MHz) or Millions of cycle per second

SDR → Synchronous Dynamic RAM

DDR → Double Data Rate

SSD → Solid State Drive

ROM :— [Read only Memory]

- Help in Booting.
- Store BIOS software

- Information is stored on the ROM at the times of its manufacture.
- It is non-volatile & retains its information even after the power is switched off.
- The types of ROM include ;

PROM [Programmable ROM] (no editing)
→ EPROM [Erasable PROM] (editing)
→ EEPROM [Electrically EPROM] (editing) — BIOS stored here

b) Secondary Memory [Auxiliary Memory] :-

- Used to store data for a long time.
- operates at a much slower rate than 1° memory.
- It is Permanent in nature. So it is called non-volatile
- Provide backup storage.
- 1° Memory is fast but expensive, 2° Memory is slow but cheap.
- eg: Floppy Disks [1.44MB], CDs [700 MB] (Optical storage) (games thru 555)
  DVDs [4.7GB] (optical storage), Memory cards, USB sticks, Magnetic tapes. (solid storage)

eg: SASD :- Sequential Access Storage Device [

eg: BRD :- Blue Ray disc - [25 GB] in single layered, [50 GB] in double layered. (Optical storage)

HVD :- Holographic Disc :- → For users [3.9TB]
→ For scientist [6TB]

☆ Flash Memory :- • Electronic, Non-Volatile Memory.
• eg: Pendrive, Memory card. (solid storage)

☆ Virtual Memory :- To load an applicat, storage borrowed from hard disc is called Virtual-Memory or Extended RAM.

☆ Cache Memory :- • Very High speed, expensive Memory.
• Works bet main Memory & CPU.
• Used to hold those Parts of data and program which are most frequently used by CPU.
• Stores data temporarily.

Facts Regarding some of Memory Devices :-

- Magnetic tapes are long plastic tapes coated with magnetic material.
- CD [Compact Disc] is an optical Medium.
- CD is read using a laser Beam.
- DVD [Digital Versatile Disc] is also an optical Medium.
  ↓
  [It has more space than CD]

3. INPUT / OUTPUT :-

- Input enables us to enter data into a computer.
  Eg:- Keyboard, Mouse
- Output enables the computer to show the results.
  Eg:- Printer, Monitor, Speaker

Input-output devices are also called **Peripheral devices.**

These are also called **interface** as they translate information for man & machine.

:- INPUT DEVICES :-

a) OMR [Optical Mark Reader] :-

- Used Magnetic Ink.
- Capable of reading specially prepared forms which have a provision for black marks in a specific positions.

b) MICR [Magnetic Ink Character Reader] :-

- It is an I.D used by the **Bank Cheques**.

c) Bar Code Reader [BCR] :-

- It is an I.D able to scan & decode barcodes.

d) QR [Quick Response] :- [Invention :- Denso Wave (1994)]

contains a Matrix of code.

e) Key Board :- [Christopher Latham]

Alphabetical Keys (A-Z, a-z)
Number Keys (0-9)
Function Keys. (F1 to F12)
Modifier Keys (Ctrl, Alt, Shift)
Toggle Keys (Caps lock, Num-lock, Scroll-lock)

- There are [104 Keys] in standard keyboards & [17] keys in Number Pad.

f) Mouse :-

- There are two types of Mouse; optical & Mechanical Mouse.
  ⇓
  [A light below the Mouse]

g) Track Ball [Insert motion Data]

- Pointing device that can be used instead of mouse.

h) Light Pen

- Used for digital signature. It can work with any CRT (Cathod Ray Tube) based monitor.

i) Stylus

Pen shaped input device that is used to draw or write on the screen of a Graphic tablet.

j) Scanner :- [MRI :- Magnetic Resonance Imaging]

I.D that reads an image & converts it into a dig file. There are diff types of scanners :-

- Speed of scanner is measured in PPM (Pages Per Minute)
- Flat bed scanner
- Sheet fed scanner (ADF scanner) [Automatic Document Feeder] (Don't scan books)
- Handheld scanner [Bar code scanner]
- Drum scanner (High Resolution scanner)

K) Joystick :-

I.D used to control video games.

L) Touch pad :-

It consists a specialized surface that can translate the motion & position of a user's finger to a relative position on the operating system.

M) Microphone :- [Inventor :- Emile Berliner]

converts Sound Waves into electric waves or Input the audio into the computers.

N) Pen tab :-

Enables the user to hand draw images, animations & Graphics with a special Pen like stylus.

-: OUTPUT DEVICES :-

a) Monitor :-

- known as Standard O.D.
- It is of following types;
  - * CRT (Cathode Ray Tube) [Smallest unit :- Pixels]
  - * TFT (Thin Film Transistor)
  - * LCD [Non-Emissive Display]
  - * LED [Emissive Display]

- On the basis of colours, monitors can be divided into
  - * Monochrome Monitor [Black & White]
  - * Colour Monitor

b) Printer :- [Johannes Gutenberg] [Resolution measured in :- Dots Per Inch (DPI)]
- 1st electronic printer :- [EP-10] [Speed measure :- Character Per Second [Daisy wheel, Dot matrix]]

* Impact Printer
  - Use Hammer & Ribbon on the Paper directly.
  - eg:- Daisy wheel, Dot Matrix, Line Printers. (Chain & Drum Printer)
    - [Dot Matrix Printer] (Character Printer) (1 alphabet at a time)
    - [1st Computer printer]
    - [Lines Per Minute (LPM)]

* Non-Impact Printer
  - Doesn't use Hammer & ribbon for Printing.
  - Also does not strike the Paper directly
  - eg:- Inkjet, Laser, Thermal printer etc. [Speed :- PPM]
    - Inkjet → (Character printer)
    - Thermal [Ex:- ATM, FAX] [Uses Bisphenol coated paper]

Printers generally come in 3 Popular versions:

1) Dot Matrix [Invented by IBM]
2) Ink-Jet Printers [Speed :- PPM] [1st Invented by HP]
3) Laser Printers [Speed :- PPM] [Fastest Printer]

1) Dot Matrix ⇒ It print characters in the form of combination of very tiny dots. (∴)
2) Ink-Jet ⇒ It sprays jets of ink on to the Paper.
3) Laser Printer ⇒ It use a laser beam to actually burn the characters on to the Paper.

c) Plotters :-
- Used to Produce high quality, accurate & bigger drawings.
- Used in CAD, CAM applications such as House maps, banners, hoardings, car Parts etc.

d) Ports :-

- Jack or receptacle for some other peripheral device to plug into.
- Some Ports are Universal Serial Bus (USB). Reports, USB-C Ports, Ethernet Ports or Display Ports.
- There are diff^n types of Ports Available ; Serial Port, Parallel Port & USB Port.

FACTS

1. Hardware comprises of the Physical units of a computer sys
2. Software is a set of Programs.
3. Data are raw facts & figures.
4. O.S is an interface betn the user & the computer hardware.
5. Some Popular O.S are DOS, UNIX, Windows, LINUX, Mac Os etc.
6. Database is a collection of Interrelated data.
7. MS Access is a Powerful Program to create & manage our database.

PORTS :-

Connect point acts as an interface between the computer and external devices like Printers, modems etc.

Types of Ports :-

★ There are 2 types of Ports;

1. **Internal Port** :- It connects the system's motherboard to internal devices like Hard disk, CD Drive, Internal Bluetooth etc.

2. **External Port** :- It connects the system's motherboard to external devices like a mouse, Printer, USB etc.

★ Some Important types of Ports;

1. **Serial Port** :- [Labelled as :- 1010] [Data transmit :- bit by bit] [COM Port] (Male Port) (Communication Port)
   - Used for :- external modems, Older computer Mouse, Keyboard, Bar-code scanners
   - Two Version :- 9 Pin; 25 Pin
   - Data travel :- 115 Kbps
   - Transmit :- A single stream of data at a time.

2. **Parallel Port** :- [केबल जाएगा नहीं आएगा] [Centronic Port] [Line printer Port] (Female Port)
   - Used for :- Scanners & Printers, Joysticks, Web cam, Hard Drive; CD-Drive, External Drive
   - Pin Model :- 25 Pin
   - Transmit :- Multiple data streams at a time. [8 bits of data (1 byte) at a time]
   - Replaced to

3. **Universal Serial Bus (USB) Port** [Inventor :- Ajay Bhatt]
   - It can connect all kinds of external USB devices such as external hard Disk, Printers, Scanners, Mouse, Keyboard etc.

- Data travel :- 12 Mb/s

4. Firewire Port :- [used to connect 2 computers to transfer files • developed by Apple.]
- Transfers large amounts of data at a very fast speed.
- connects :- Camcorders and Video equipments to the computer, printer & scanner.
- Data travel :- 400 to 800 Mb per second.
- Pins :- 6 pin & 4 pin

5. Ethernet Port :- [LAN port / Network port]
- connects to a network and High-speed Internet.
- Data travels :- 10 Mb to 1000 Mb per second, depending upon the network bandwidth.

OS User Interface :-

[User use करने वाला screen कैसे दीखता है]

1. Command-based Interface :-

User gives commands to perform different tasks like creating, opening, editing, or deleting a file.

→ Primary input device is KEYBOARD.

→ Eg: MS-DOS & UNIX

2. Graphical User Interface :- [GUI]

Programs & instructions are run in the form of icon, menus and other visual options.

→ Input devices include MOUSE & KEYBOARD.

→ Eg: MS Windows, Ubuntu, Fedora, Macintosh etc.

3. Touch Based Interface :-

Eg: Smart phones, Tablets, PCs etc.

Eg: Android & iOS, Windows 8.1 & 10 etc.

4. Voice Based Interface :—

Voice based commands are used to make a computer work in a desired way.

→ Ex// iOS (Siri), Android (OK GOOGLE), MS Windows (Cortana) etc.

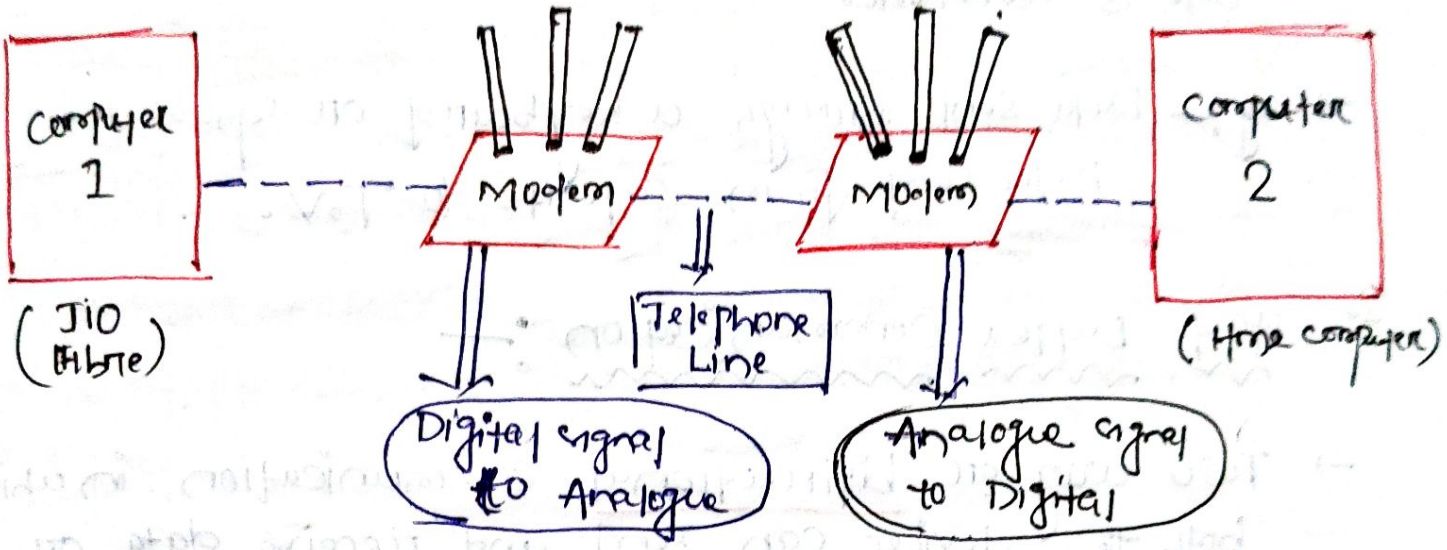
NAME OF THE OS	Released Date
1. UNIX	1. 1969
2. MS-DOS	2. 1981
3. Windows	3. 1985
4. Blackberry OS	4. 1999
5. Mac OS	5. 2001
6. iOS	6. 2007
7. Android	7. 2008
8. Windows Phone	8. 2010
9. Chrome OS	9. 2011
10. Firefox OS	10. 2013

—: Diff types of Port :—

1. PS 2 Port :— 6 pin [keyboard, mouse]
2. VGA / Video Graphics Array Port :— 15 pin [connect monitor]
3. DVI / Digital visual Interface :— [connect Monitor]
4. HDMI port / High Definition multimedia Interface :— 19 pin [TV, projector]

Facts Related to Internet Connection :-

In order to get internet connect, we need Modem (Modulation-demodulation). MODEM converts the digital signal from the computer into an Analogue signal that can travel through the telephone lines, & vice-versa.



ROUTER :- It is also attached to access the network.
- It is used to connect two diff^n network.

MODEM :- It connects our home network to our internet service provider (JIO Fiber) and a ROUTER lets all our wired and wireless devices use our internet connect at once & allows them to talk to one another directly.

SHORT-CUT KEY

1. BOOKMARK the current page = Ctrl + D

-: TYPES OF COMMUNICATION :-

1. Simplex communication :-

→ One way or unidirectional communication b/w two devices in which one device is sender & the other one is receiver.

→ Eg :- Data sent through a keyboard or speaker.
Data sent from satelite to T.V.

2. Half Duplex Communication :-

→ Two way or bidirectional communication in which both the devices can send and receive data or control signals in both directions but not at the same time.

→ Eg :- Walkie-talkie

3. Full Duplex Communication :-

→ Two way or bidirectional communication in which both the devices can send & receive data simultaneously.

→ Eg :- connect b/w two computers.

-: VOIP :- [Voice over Internet Protocol]

→ communication methodology designed to deliver both voice and multimedia communications over internet protocol.

-: VOLTE :- [Voice Over Long Term Evolution]

→ It is a standard for high speed wireless communication for mobile phones, including IOT & wearables.

:- Keyboard shortcuts :-

Ctrl + A = Select All

Ctrl + B = Bold

Ctrl + C = copy

Ctrl + E = Centre Alignment

Ctrl + I = Italic

Ctrl + J = Justified Alignment

Ctrl + L = Left Alignment

Ctrl + N = New Blank Document

Ctrl + O = open existing Document

F12 = Save as

Ctrl + Home = Go to the beginning of the File

Alt + Shift + Tab = Switch to previous opened Program

Ctrl + U = Underline

Ctrl + K = Hyperlink

Ctrl + R = Right Alignment

Alt + Tab = Switch to next opened Program

Ctrl + Y = Redo

Ctrl + Z = Undo

Ctrl + W = close file

Ctrl + X = cut

Ctrl + V = Paste

Ctrl + S = save

F7 = Spell check

F2 = edit / Rename

Ctrl + End = Go to the end of the file

Ctrl + F4 = close window / Shut Down

Ctrl + P = Print

NOTE

ENIAC :- Electronic Numerical Integrator And Computer.

UNIVAC :- Universal Automatic Computer. [1st commercial computer]

EDVAC :- Electronic Discrete Variable Automatic Computer. [J v Neuman]

EDSAC :- Electronic Delay Storage Automatic Calculator.